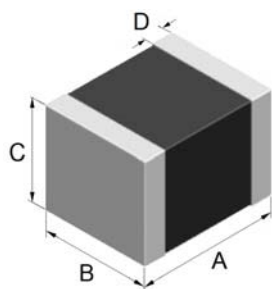


SMD Transient Voltage Suppressors

TVSM1210LHXV-Series

1. Dimension



Series	A(mm)	B(mm)	C(mm)	D(mm)
1210	3.20+0.60/-0.20	2.50+0.40/-0.20	2.60 max	0.50±0.25

2. Part Numbering

TVSM 1210 LHX V 240 - 060 J □

A B C D E F G H

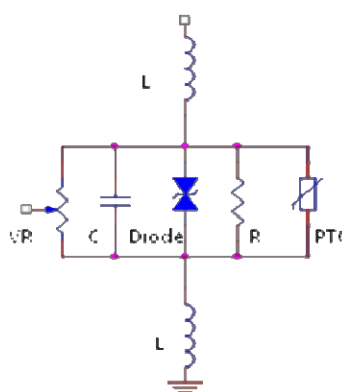
A: Series	Multilayer Varistor
B: Dimension	
C: Category Code	High Performance Surge Protection
D: Product Grade	Vehicle Grade
E: Voltage Code	240=Breakdown Voltage 24V
F: Characteristic Code	060=Load Dump Energy 6J
G: Characteristic Unit Code	J=Joule
H: Inner Code	

3. Features

1. RoHS compliant
2. SMD type
3. Meet ISO7637-2 pulse 5
4. Qualified based on AEC-Q200
5. Bidirectional and symmetrical V/I characteristics
6. Large withstanding surge current capability
7. Large load dump withstanding capability
8. Operating temperature range : -55~+125°C
9. Multi-Layers construction provides higher power dissipation

Equivalent Circuit

L	Body Inductance
C	Device Capacitance
VR	Voltage Variable Resistor
R	Insulation Resistor
Diode	Voltage Clamped
PTC	for Low Leakage Current



4. Technology Data

TAI-TECH Part Number	Maximum allowable continuous DC voltage (V)	Breakdown voltage (V)	Maximum allowable clamping voltage (V)	Maximum peak current (8/20 μ s) (A)	Jump start voltage (5min) (V)	Load dump energy (J)
TVSM1210LHXV240-060J	16	24($\pm$ 10%)	40	800 (for +/- 1 time)	24.5	6 (for 10 times)
TVSM1210LHXV240-120J	16	24($\pm$ 10%)	40	1000 (for +/- 1 time)	24.5	12 (for 10 times)

Notes :

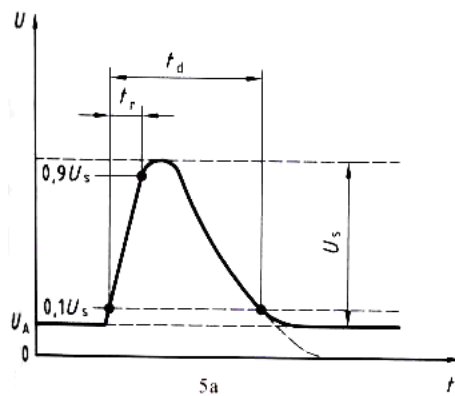
1. The breakdown voltage was measured at 1mA.
2. The clamping voltage was measured at 8/20 μ s standard current, 1210(2.5A).

4-1. Reference Data			
ITEM	Symbol	Unit	Value
Typical capacitance value @ 1MHz	C	pF	@TVSM1210LHXV240-060J : 2000 @TVSM1210LHXV240-120J : 3500
Response time	Trise	ns	< 1
Non-linear coefficient	α		> 20
Leakage current at V _{DC} (at initial state)	I _{LDC}	μ A	< 5
Leakage current at V _{DC} (after surge test)	I _{LDCA}	μ A	< 50
Operation ambient temperature	T _{OPT}	°C	-55~+125
Storage temperature range	T _{STG}	°C	-55~+150
4-2. Other Data			
Body	Nano special ceramic		
End termination	Ag/Ni/Sn		
Packaging	Reel		
Complies with standard	IEC61000-4-5 ISO7637-2		
Complies with RoHs standard	Yes		
Lead content	< 1000 ppm		
Marking	None		

Notes :

1. The capacitance value only for customer reference, it's not formal specification.

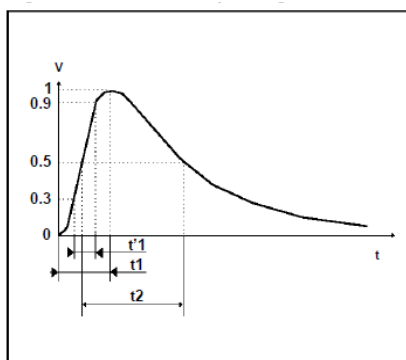
5. Load Dump and Surge Wave Forms



Load dump test waveform

ISO7637-2:2004 pulse 5A

Parameters	12V System
U_s	65~87V
R_i	0.5~4 Ω
t_d	40~400ms
t_r	5~10ms



8/20 μ s waveform current

IEC61000-4-5 standard

SEVERITY LEVEL	t_1 ($=1.67t'_1$)	t_2
1	8 μ s	20 μ s